

## CLAIMS

1. A personal ornament having a white coating layer comprising:

5 a base article of the personal ornament made of a metal, and

a white-colored stainless steel coating layer formed by a dry plating process on at least a part of the surface of the base article.

10 2. A personal ornament having a white coating layer comprising:

a base article of the personal ornament made of a nonferrous metal,

15 an underlying plating layer formed on the surface of the base article, and

a white-colored stainless steel coating layer formed by a dry plating process on at least a part of the surface of the underlying plating layer.

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3. The personal ornament having a white coating layer according to claim 1 or 2, wherein a white-colored noble metal coating layer is formed in a thickness ranging from 0.04 to 0.3  $\mu\text{m}$  by a dry plating process on the surface of  
25 the stainless steel coating layer.

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6. The personal ornament having a white coating layer according to claim 2, wherein the underlying plating layer has a multilayer structure constituted of at least one plating layer formed by a wet plating process and at least one plating layer formed by a dry plating process.

7. The personal ornament having a white coating layer according to claim 2 or 6, wherein the underlying plating layer comprises a coating layer which is formed by a wet plating process and is composed of at least one metal selected from the group consisting of gold, copper, nickel, chromium, tin, palladium, nickel-phosphorus alloys, nickel

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alloys excluding nickel-phosphorus alloys, copper-tin-  
palladium alloys, copper alloys excluding copper-tin-  
palladium alloys, tin alloys excluding copper-tin-  
palladium alloys, and palladium alloys excluding copper-  
5 tin-palladium alloys.

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8. The personal ornament having a white coating layer  
according to claim 7, wherein the nickel-phosphorus alloy  
plating layer as the underlying plating layer is a hard  
10 coating layer having been treated for age hardening.

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9. The personal ornament having a white coating layer  
according to claim 2 or 6, wherein the underlying plating  
layer is a coating layer formed by a wet plating process  
15 and composed of at least one nickel-free metal selected  
from the group consisting of gold, copper, chromium, tin,  
palladium, copper-tin-palladium alloys, copper alloys  
excluding copper-tin-palladium alloys, tin alloys  
excluding copper-tin-palladium alloys, and palladium  
20 alloys excluding copper-tin-palladium alloys.

10. The personal ornament having a white coating layer  
according to claim 2 or 6, wherein the underlying plating  
layer is a coating layer formed by a dry plating process  
25 and is composed of titanium carbide, zirconium carbide, or

tantalum carbide.

5 11. The personal ornament having a white coating layer according to any of claims 2, and 6 to 10, wherein the underlying plating layer has an entire thickness ranging from 0.2 to 30  $\mu$ m.

10 12. The personal ornament having a white surface coating layer according to any of claims 1 to 3, wherein the white-colored stainless steel coating layer is composed of an austenitic stainless steel having a composition of 0.01-0.12 vol% of carbon, 0.1-1.0 vol% of silicon, 1.0-2.5 vol% of manganese, 8-22 vol% of nickel, and 15-26 vol% of chromium.

15 13. The personal ornament having a white coating layer according to any of claims 1 to 3, wherein the white-colored stainless steel coating layer is composed of a nickel-free ferritic stainless steel having a composition  
20 of 0.01-0.12 vol% of carbon, 0.1 -1.0 vol% of silicon, 1.0-2.5 vol% of manganese, 14-20 vol% of chromium, and 0.4-2.5 vol% of molybdenum.

25 14. The personal ornament having a white coating layer according to any of claims 1 to 3, and 12 and 13, wherein

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the white-colored stainless steel coating layer is formed by a dry plating process selected from a sputtering method, an arc evaporation method, or an ion-plating method.

15. The personal ornament having a white coating layer according to any of claims 1 to 14, wherein the stainless steel coating layer has a thickness ranging from 0.1 to 2.0  $\mu\text{m}$ .

16. The personal ornament having a white coating layer according to any of claims 1 to 15, wherein, on the surface of the base article or of the underlying plating layer, at least one plating layer different in color tone from the white-colored stainless steel coating layer is formed by a dry plating process in addition to the stainless steel coating layer formed by a dry plating process.

17. The personal ornament having a white coating layer according to claim 16, wherein the plating layer different from the stainless steel coating layer is at least one coating layer composed of gold, gold alloys, titanium nitride, and zirconium nitride.

18. The personal ornament having a white coating layer

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washing and degreasing the surface of the base

article;

forming on the surface of the base article an underlying plating layer by a wet plating process or a dry plating process;

- 5        setting the base article having the underlying plating layer in a dry plating apparatus selected from sputtering systems, arc evaporation systems, and ion-plating systems, and cleaning the surface of the underlying plating layer by bombard cleaning in an argon  
10 gas atmosphere; and

forming a white-colored stainless steel coating layer by a dry plating process on the surface of the underlying plating layer.

- 15        21. The process for producing a personal ornament having a white coating layer according to claim 19 or 20, which further comprises, after the formation of the white-colored stainless steel coating layer, the step of forming  
20 a white-colored noble metal coating layer in a thickness ranging from 0.04 to 0.3  $\mu\text{m}$  by a dry plating process on the surface of the stainless steel coating layer.

22. The process for producing a personal ornament having a white coating layer according to claim 19,  
25 wherein the metal employed for forming the base article of

the personal ornament is tungsten carbide or tantalum carbide.

23. The process for producing a personal ornament  
5 having a white coating layer according to claim 20,  
wherein the nonferrous metal employed for forming the base  
article of the personal ornament is at least one  
nonferrous metal selected from the group consisting of  
copper, copper alloys, aluminum, aluminum alloys, zinc,  
10 zinc alloys, magnesium and magnesium alloys.

24. The process for producing a personal ornament  
having a white coating layer according to claim 20,  
wherein the underlying plating layer has a multilayer  
15 structure constituted of at least one plating layer formed  
by a wet plating process on the surface of the base  
article and at least one different plating layer formed  
thereon by a dry plating process.

25. The process for producing a personal ornament  
having a white coating layer according to claim 20 or 24,  
wherein the underlying plating layer is formed by a wet  
plating process from at least one metal selected from the  
group consisting of gold, copper, nickel, chromium, tin,  
25 palladium, nickel-phosphorus alloys, nickel alloys

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excluding nickel-phosphorus alloys, copper-tin-palladium alloys, copper alloys excluding copper-tin-palladium alloys, tin alloys excluding copper-tin-palladium alloys, and palladium alloys excluding copper-tin-palladium alloys.

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26. The process for producing a personal ornament having a white coating layer according to claim 25, wherein the nickel-phosphorus alloy plating layer as the underlying plating layer is treated for age hardening at 200 to 450°C for 20 to 60 minutes to harden the nickel-phosphorus alloy plating layer.

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27. The process for producing a personal ornament having a white coating layer according to claim 20 or 24, wherein the underlying plating layer is formed by a wet plating process from at least one nickel-free metal selected from the group consisting of gold, copper, chromium, tin, palladium, copper-tin-palladium alloys, copper alloys excluding copper-tin-palladium alloys, tin alloys excluding copper-tin-palladium alloys, and palladium alloys excluding copper-tin-palladium alloys.

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28. The process for producing a personal ornament having a white coating layer according to claim 20 or 24, wherein the underlying plating layer is formed from

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formed by a sputtering method, an arc evaporation method, or an ion plating method.

32. The process for producing a personal ornament having a white coating layer according to any of claims 19, 20, and 22 to 31, which further comprises,

after the steps of forming a white-colored stainless steel coating layer on the surface of the ornament base article or of the underlying coating layer,

at least once the steps of:

masking a part of the stainless steel coating layer,

forming a plating layer different in color tone

from the stainless steel coating layer on the surface of the stainless steel coating layer and the surface of the

mask by a dry plating process, and

removing the mask and the coating layer on the mask,

to thereby provide an outermost plating layer

having a white-colored stainless steel coating layer

portion and at least one plating layer portion different

in color tone from the stainless steel coating layer.

33. The process for producing a personal ornament having a white coating layer according to claim 32, wherein the plating layer different in color tone from the stainless steel coating layer is at least one coating

layer formed from a metal selected from the group  
consisting of gold, gold alloys, titanium nitride, hafnium  
nitride and zirconium nitride by a dry plating process  
selected from sputtering methods, arc evaporation methods,  
5 and ion plating methods.

34. The process for producing a personal ornament  
having a white coating layer according to claim 21,  
wherein the white-colored noble metal coating layer is a  
10 coating layer formed by a dry plating process from a noble  
metal selected from the group consisting of palladium,  
platinum, rhodium, gold alloys, silver and silver alloys.

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